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of the Catchments Sensitivity on the Observed Climate Change Signal

Understanding the spatiotemporal variability of basin hydrological response in the context of a changing environment plays a crucial role in meeting future challenges towards a sustainable environment. This study aims at investigating the temporal dynamic of basic water cycle components and disentangling the relative importance of land use/land cover change and climate variability on the observed increased streamflow. Trends in observational data, precipitation and streamow, are detected using Mann-Kendall statistical trend test. Non-observational component, actual evapotranspiration (ET) rate, is estimated with a Rainfall-Runoff model. We also examine ANOVA attribution concept to search for signals of change in climate variability and/or land use land cover (LULC) that could be attributable to the observed increased streamflow over the study watersheds. The ANOVA statistical approach reveals that the climate variability is the more dominant factor on increased streamflow in all study watersheds than that of LULC change. However, in the disturbed watersheds there is evidence of a possible combined impact of LULC and climate variability on increased streamow. This possible combined impact could be addressed by temporal decrease in ET over the second period, which can subsequently lead to an increase in streamow volume.

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